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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Martin Schleusener

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PATENT DEPARTMENT
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EXAMINER

VILLALUNA, ERIKA J

ART UNIT

PAPER NUMBER

2852

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,161	Applicant(s) SCHLEUSENER, MARTIN	
	Examiner ERIKA VILLALUNA	Art Unit 2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/21/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 38-70 and 72-75 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 38-70 and 72-75 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/21/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 38 is objected to because of the following informalities: "an film" (line 16) should be amended to read - - a film - -.

Claim 47 is objected to because of the following informalities: "claim41" (line 1) should be amended to read - - claim 41 - -.

Claim 48 is objected to because it depends from cancelled claim 4. It appears applicant intends claim 48 to depend from claim 41 and for the purpose of applying prior art has been treated as such.

Claims 72 and 73 are objected to because they depend on non-existent claim 71. It appears applicant misnumbered the claims, and intends claims 72 and 73 to be numbered claims 71 and 72, respectively.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 38-46, 48, 53, 54, 70, 74, and 75 are rejected under 35 U.S.C. 102(b) as being anticipated by Itaya (US 6,539,191 B2).

Regarding claim 38, Itaya discloses a method for printing of a recording medium (P), comprising: generating potential images of images to be printed on a potential

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image carrier (1); to develop the potential images, using a liquid developer (c. 1, ll. 8-11) that comprises a transparent photo-polymerizable carrier liquid and charged colorant particles suspended therein (c. 6, ll. 5-10); transporting the developer via an applicator roller (c. 3, ll. 18-20; fig. 1) to the potential image carrier (1) in a quantity that is substantially constant per time and area (quantity of transported developer is substantially constant per time and area) to form a developer film in a developing zone between the potential image carrier and the applicator roller for development of the images, the developer film adjacent to the potential image carrier comprising said photo-polymerizable carrier liquid enriched with said colorant particles in regions in which potential images are present on the potential image carrier and comprising said photo-polymerizable liquid substantially depleted of said colorant particles in regions in which no potential images are present (It is the function of an electrostatic image forming apparatus that colorant particles are transferred to image carrier 1 only in regions where potential images are present), the developer film splitting at an end of the developing zone into a film adhering to the potential image carrier comprising the developed potential image and a film adhering to the applicator roller comprising said photo-polymerizable liquid with residual colorant particles (some residual colorant particles will remain on applicator roller); transferring the image film with the developed potential images from the potential image carrier onto the recording medium (P) such that the colorant particles and a portion of the photo-polymerizable liquid in which the colorant particles are arranged migrates from the image film (fig. 2); and fixing on the recording medium with a UV radiation the image film with the potential images to be

developed such that the colorant particles of the developed potential images are embedded in a solid, transparent polymer mass via photo-polymerization, and otherwise the photo-polymerizable liquid is solidified into a transparent film (c. 5, ll. 28-32).

Regarding claims 39-45, Iyata discloses wherein the photo-polymerizable liquid is high-ohmic; which the photo-polymerizable liquid comprises acrylester (c. 6, ll. 5-13); in which the liquid developer is produced via suspension of solid particles in the photo-polymerizable liquid (c. 7, ll. 10-30); and in which charge control substances (electrically insulating solvents; c. 6, ll. 19-21) that influence the charging of the suspended colorant particles is added to the photo-polymerizable liquid; in which initiators (c. 6, ll. 14-18) that accelerate the photo-polymerization of the liquid are added to the photo-polymerizable liquid; in which surface tension-influencing and viscosity-controlling agents (c. 6, ll. 19-21, 38-43) are added to the photo-polymerizable liquid; in which a proportion of colorant particles in the liquid developer is >10% (c. 6, ll. 45-50).

Regarding claims 46, 48, 53, 54, and 70, Iyata discloses a composition of the photo-polymerizable liquid and of the colorant particles suspended therein is selected such that the solid particles in the photo-polymerizable liquid charge with a preferred polarity (c. 2, ll. 8-17); ; in which an intermediate image carrier (belt 6) onto which the colorant particles and a portion of the photo-polymerizable liquid are transferred is arranged between the potential image carrier and the recording medium (P); given multi-color printing, various color separations are successively applied to the potential image carrier and successively transferred onto the recording medium or an intermediate carrier (c. 4, ll. 4-11); in multi-color printing, color separations are collected

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on the potential image carrier and are subsequently transferred onto the recording medium or an intermediate carrier (c. 4, ll. 4-11); in which a UV radiation is used to increase a viscosity of the image film (c. 5, ll. 42-46; c. 7, ll. 46-52).

Regarding claims 74 and 75, Iyata discloses an electrographic printer or copier device, comprising: an imaging station (fig. 6) at which potential images of images to be printed are generated on a potential image carrier (1); a developer station (3a-3e) at which to develop the potential images, a liquid developer is used that comprises a transparent photo-polymerizable carrier liquid in charged colorant particles suspended therein (c. 1, ll. 7-11; c. 6, ll. 1-10); an applicator roller (see applicator roller; fig. 6) which transports the developer to the potential image carrier in a quantity that is substantially constant per time and area (developer is transported to image carrier 1 in a quantity that is substantially constant per time and area) to form a developer film in a developing zone between the potential image carrier and the applicator roller for development of the potential images, the developer film adjacent to the potential image carrier comprising said photo-polymerizable carrier liquid enriched with said colorant particles in regions in which potential images are present on the potential image carrier and comprising said photo-polymerizable liquid substantially depleted of said colorant particles in regions in which no potential images are present (It is the function of an electrostatic image forming apparatus that colorant particles are transferred to image carrier 1 only in regions where potential images are present), the developer film splitting at an end of the developing zone into an image film adhering to the potential image carrier comprising the developed potential image and a film adhering to the applicator

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roller, said film comprising said photo-polymerizable liquid with residual colorant particles (some residual colorant particles remain on applicator roller); a transfer station (7; fig. 6) at which the image film with the developed potential images is transferred from the potential image carrier onto the recording medium (P) such that the colorant particles and a portion of the photo-polymerizable liquid in which the colorant particles are arranged migrates from the image film (figs. 2 and 3); and a fixing station (8a, 8b; fig. 6) where the image film with the potential images to be developed is fixed on the recording medium with a UV radiation such that the colorant particles of the developed potential images are embedded in a solid, transparent polymer mass via photo-polymerization, and otherwise the photo-polymerizable liquid is solidified into a transparent film (c. 5, ll. 28-33).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 47 and 49-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iyata (US 6,539,191 B2) in view of Tsukamoto (JP 10-073997 A).

Regarding claim 47 and 49-52, Iyata discloses the invention as set forth above.

Iyata is silent on a developing bias, removing roller, and transfer bias.

Tsukamoto teaches a liquid developer apparatus in which a bias voltage (V_{DR}) is applied to an applicator roller such that a transition of the liquid developer into the image

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areas of the potential image carrier is aided; in which a removal roller (18) that is brought into contact with the photo-polymerizable liquid is used to reduce the photo-polymerizable liquid (Abstract, Solution, II. 5-6); in which an auxiliary potential (V_{RR}) is applied to the removal roller such that the colorant particles inking the potential image are repelled by the removal roller; in which the photo-polymerizable liquid is reduced by approximately 50% by the removal roller (Abstract Solution, II. 6-13); in which the transfer of the developer liquid onto the intermediate carrier recording medium is assisted by an electrical field existing between the intermediate image carrier recording medium and the potential image carrier or intermediate image carrier and recording medium (an electrical field exists at least between potential image carrier and image carrier recording medium).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Iyata with the developing bias and removing roller of Tsukamoto to provide a high-density toner image at a high speed. See Tsukamoto, Abstract, Problem to be Solved.

Claims 55-64, 67-69, 72 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iyata (US 6,539,191 B2) in view of King et al. (US 2005/0074260 A1).

Regarding claims 55-64, 67-69, 72, and 73, Iyata discloses the invention as set forth above including fixing using ultraviolet light and infrared heat (c. 5, II. 28-33); in which the viscosity increase of the image film is such that the transfer printing of the image film onto the recording medium occurs via contact pressure (contact pressure at transfer roller 7 transfers printing onto recording medium P; c. 3, II. 59-64).

Iyata is silent on using visible light.

King et al. teaches a radiation source is used for the fixing that radiates a combination of ultraviolet light, visible light and infrared radiant heat (par. [0122]); in which a post-fixing with a UV radiation is implemented (combination of UV radiation, par. [0122]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Iyata with the visible light fixing of King et al. for the benefit of improved fixing capacity.

Although Iyata in view of King is silent on specific wavelength values, and spectral distribution and power density of the UV radiation, it would have been obvious to one having ordinary skill in the art at the time the invention was made to determine optimal wavelength values, spectral distribution, and power density to achieve the desired fixing properties.

Claims 65 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iyata (US 6,539,191 B2) in view of King et al. (US 2005/0074260 A1), and further in view of Yamamoto et al. (JP 2000-198570 A).

Regarding claims 65 and 66, Iyata in view of King et al. discloses the invention as set forth above.

Iyata in view of King et al. is silent on using an inert gas.

Yamamoto et al. teaches a printer roller in which an inert gas is used when an intensified surface hardening is to be achieved; in which nitrogen is used as an inert gas. See Abstract, Solution.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Iyata in view of King et al. with the hardening process of Yamamoto et al. to provide a roller of specific hardness and durability. See Yamamoto et al., Abstract, Problem to be Solved.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIKA VILLALUNA whose telephone number is (571)272-8348. The examiner can normally be reached on M-F 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David M. Gray can be reached on (571) 272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David M Gray/
Supervisory Patent Examiner,
Art Unit 2852

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